PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:	
Kim et al.	
Application No.: 10/079,107	
Confirmation No.: 8050	Our File: I-2-0176.6US
Filed: February 20, 2002	Date: February 14, 2008
For: SIMPLE BLOCK SPACE TIME TRANSMIT DIVERSITY USING MULTIPLE SPREADING CODES	
Group: 2616	
Examiner: Thai D. Hoang	

APPEAL BRIEF TO THE BOARD OF PATENT APPEALS AND INTERFERENCES PURSUANT TO C.F.R. §41.37(c)

Mail Stop Appeal Brief -Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Further to the November 14, 2007 Notice of Appeal, the Appellant hereby submits this Appeal Brief.

TABLE OF CONTENTS

(1) REAL PARTY IN INTEREST

In this Appeal, the real party in interest is the assignee of record, InterDigital Technology Corporation.

(2) RELATED APPEALS AND INTERFERENCES

Concurrently with this Appeal, Appellant is filing appeals in related Application Numbers 09/999,287, 10/071,903, 10/071,917, 10/077,076, 10/077,565, and 10/107,465. Apart from those Applications, Appellant and the undersigned representative do not know of any other appeal, interference, or judicial proceeding that is related to, directly affects, is directly affected by, or has a bearing on decision of the Board of Patent Appeals and Interferences (hereinafter the "Board" or the "Board of Appeals") in this Appeal.

(3) STATUS OF THE CLAIMS

Claims 1-4 and 13-16 are rejected. Claims 42-45 are the subject of this Appeal and are attached in the Claims Appendix. No other claims are pending.

(4) STATUS OF THE AMENDMENTS

Appellant filed a Reply on June 22, 2007, pursuant to 37 C.F.R. §1.111, subsequent to the non-final rejection mailed February 22, 2007, wherein the Appellant amended claims 1, 5, 13, and 15 and argued the allowability of pending Claims 1-8 and 13-16. On August 15, 2007, a final rejection issued finally rejecting claims 1-8 and 13-16.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

Independent Claim 1

Claim 1 is directed to a method for transmitting a data field of symbols (see page 3, paragraph [00017], and Figure 3). The method includes generating a first data field

of symbols (see page 5, paragraph [00030], and Figure 3), encoding said first data field producing a second data field having complex conjugates of the symbols of said first data field (see page 5, paragraph [00030] and step 304 of Figure 3), spreading said first and second data fields, wherein said first data field is spread using a first channelization code that is uniquely associated with a first antenna and said second data field is spread using a second channelization code that is uniquely associated with a second antenna (see page 5-6, paragraph [00030], and steps 303, 305 and 306 of Figure 3), and transmitting an RF signal including said first and second spread data fields over the first and second antennas (see page 6, paragraph [00030] and step 308 of Figure 3).

Dependent Claim 2

Claim 2 is directed toward the method of Claim 1, further including the scrambling of the first and second spread data fields by a scrambling code associated with the base station (see step 307 of Figure 3 and page 6, paragraph [00030]).

Dependent Claim 3

Claim 3 is directed toward the method of Claim 2 wherein the symbols of the first data field of symbols are grouped into a first and second sub-data field (see step 302 of Figure 3 and page 5, paragraph [00030]).

Dependent Claim 4

Claim 4 is directed toward the method of Claim 3 wherein the symbols of the second data field of symbols are grouped into a third and fourth sub-data field (see step 302 of Figure 3 and page 5, paragraph [00030]). The third sub-data field is the negative complex conjugate of said second sub-data field and said fourth sub-data field is the complex conjugate of said first sub-data field (see page 4, paragraph [00023]).

Independent Claim 5

Claim 5 is directed to a transmitter for transmitting a data field of symbols (see pages 3-4, paragraph [00022], and Figure 2). The transmitter includes a first and second antenna for transmitting said data field of symbols, wherein said data field includes a first data field (see page 4, paragraph [00023], page 5, paragraph [00030], and Figures 2 and 3), an encoder for encoding said data field producing a second data field having complex conjugates of the symbols of said data field (see page 4, paragraph [00023] and Figure 2), a first channelization device for receiving the data field including the first data field and spreading said first data field, wherein said first channelization device spreads said first data field using a first channelization code that is uniquely associated with the first antenna (see page 4, paragraph [00024], pages 5-6, paragraph [00030], and step 306 of Figure 3), and a second channelization device for receiving the second data field from the encoder and spreading said second data field using a second channelization code, the second channelization code being uniquely associated with the second antenna (see page 4, paragraph [00024], pages 5-6, paragraph [00030], and step 306 of Figure 3).

Dependent Claim 6

Claim 6 is directed toward the transmitter of Claim 5, wherein the transmitter further comprises a first and second scrambling device for scrambling the first and second spread data fields by a single scrambling code associated with the transmitter (see page 4, paragraphs [00024] and [00025], Figure 2, step 307 of Figure 3 and page 6, paragraph [00030]).

Dependent Claim 7

Claim 7 is directed toward the base station of Claim 6 wherein the symbols of the first data field of symbols are grouped into a first and second sub-data field (see step 302 of Figure 3 and page 5, paragraph [00030]).

Dependent Claim 8

Claim 8 is directed toward the base station of Claim 6 wherein the symbols of the second data field of symbols are grouped into a third and fourth sub-data field (see step 302 of Figure 3 and page 5, paragraph [00030]). The third sub-data field is the negative complex conjugate of said second sub-data field and said fourth sub-data field is the complex conjugate of said first sub-data field (see page 4, paragraph [00023]).

Independent Claim 13

Claim 13 is directed to a method for transmitting a data field of symbols (see page 3, paragraph [00017], and Figure 3). The method includes generating a data field of symbols, wherein said data field includes a first data field (see page 5, paragraph [00030], and Figure 3), spreading said first data field using a first channelization code producing a first spread data field, wherein the first channelization code is uniquely associated with a first antenna (see pages 5-6, paragraph [00030], and steps 303, 305 and 306 of Figure 3), spreading said first data field using a second channelization code producing a second spread data field, wherein the second channelization code is uniquely associated with a second antenna (see pages 5-6, paragraph [00030], and steps 303, 305 and 306 of Figure 3), and transmitting an RF signal including said first and second spread data fields over the first and second antennas (see page 6, paragraph [00030] and step 308 of Figure 3).

Dependent Claim 14

Claim 14 is directed toward the method of Claim 13, further including the scrambling of the first and second spread data fields by a scrambling code associated with the base station (see step 307 of Figure 3 and page 6, paragraph [00030]).

Independent Claim 15

Claim 15 is directed to a transmitter for transmitting a data field of symbols (see pages 3-4, paragraph [00022], and Figure 2). The transmitter includes a first and

second antenna for transmitting said data field of symbols (see page 4, paragraph [00023], page 5, paragraph [00030], and Figures 2 and 3), a first channelization device for spreading said data field, wherein said first channelization device spreads said data field using a first channelization code that is uniquely associated with the first antenna, producing a first spread data field (see page 4, paragraph [00024], pages 5-6, paragraph [00030], and step 306 of Figure 3), and a second channelization device for spreading said data field using a second channelization code that is uniquely associated with the second antenna, producing a second spread data field (see page 4, paragraph [00024], pages 5-6, paragraph [00030], and step 306 of Figure 3).

Dependent Claim 16

Claim 16 is directed toward the transmitter of Claim 15, wherein the transmitter further comprises a first and second scrambling device for scrambling said first and second spread data fields by a single scrambling code associated with said transmitter (see page 4, paragraphs [00024] and [00025], Figure 2, step 307 of Figure 3 and page 6, paragraph [00030]).

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-4, and 13-16 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of various copending Applications. The Appellant is willing to submit a terminal disclaimer to overcome the rejections over the claims of the Applications cited if the Application is otherwise allowable.

Claims 5-8 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention.

Claims 1 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ylitalo et al. (U.S. Patent No. 6,788,661 B1) in view of Dabak et al. (U.S. Patent No. 6,775,260 B1). Claims 2-4 and 6-8 stand rejected under 35 U.S.C. §103(a) as being

unpatentable over Ylitalo et al. in view of Dabak et al., and further in view of Akiba et al. (U.S. Patent No. 6,721,300). Claims 13 and 15 stand rejected under 35 U.S.C. §102(e) as being anticipated by Dabak et al. (U.S. Patent No. 6,594,473). Claims 14 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Dabak et al. (U.S. Patent No. 6,594,473) in view of Akiba.

(7) ARGUMENT

Claims 1-4 Meet the Requirements of 35 U.S.C. §112, second paragraph.

The first and second antennas are shown in Figure 2 and recited in paragraph [00022] on pages 3-4. Either antenna shown in Figure 2 may be considered to be the first or second antenna. The encoder is shown in Figure 2 as receiving the data field that is recited in the preamble of the claim. Support for the functionality of the decoder is found in paragraph [00023] on page 4. Accordingly, claim 5 meets the requirements of 35 U.S.C. §112, second paragraph, and since claims 6-8 depend, either directly or indirectly, from independent claim 5, claims 6-8 meet the requirements of 35 U.S.C. §112, second paragraph for at least the same reasons as independent claim 5.

Claims 1 and 5 Meet the Requirements of 35 U.S.C. §103(a) as being patentable over Ylitalo et al. (U.S. Ref. No. 6,788,661) in view of Dabak et al. (U.S. Patent No. 6,775,260 B1).

The Ylitalo reference discloses an adaptive beam-time coding method and apparatus where a diversity encoder (10) receives an input signal (SIN) which contains a first symbol (S1) and a second symbol (S2). The diversity encoder performs an operation on both symbols and outputs S1 and -S2* onto a first channel (CH1) into a complex multiplier (12) and S2 and S1* onto a second channel (CH2) into a complex multiplier (14), which then impart a different spread spectrum code. In the Ylitalo reference, all input signals first go through a diversity encoder where an operation is performed prior to forwarding to the complex multipliers.

There is no disclosure, teaching or suggestion in the Ylitalo reference that a first channelization code that spreads a data field ***is uniquely associated with a first transmission antenna*** and a second channelization code that spreads a data field ***is uniquely associated with a second transmission antenna***, as is recited in the Applicant's independent claims 1 and 5.

The Dabak et al. reference does not disclose, teach, nor suggest anywhere the use of different channelization codes. Indeed, in figure 2, the Dabak et al. discloses, *inter alia*, encoded symbols D_1^1 and D_2^1 undergoing the ***same*** "user specific code" C^1. There is no teaching whatsoever that any different channelization code is used on the symbols in the Dabak et al. reference. And notably, there is no teaching in the Dabak et al. reference of a first channelization code being uniquely associated with a first transmission antenna and a second channelization code being uniquely associated with a second transmission antenna. Accordingly, the Dabak et al. reference does not cure the deficiencies of the Ylitalo et al. reference.

Accordingly, the Applicant's independent claims 1 and 5 are patentable over the Ylitalo et al. and Dabak et al. references, whether taken alone or in combination with one another.

Claims 2-4 and 6-8 Meet the Requirements of 35 U.S.C. §103(a) as being patentable over Ylitalo et al. (U.S. Ref. No. 6,788,661) in view of Dabak et al. (U.S. Patent No. 6,775,260 B1), and further in view of Akiba et al. (U.S. Patent No. 6,721,300).

The Akiba reference discloses an encoding method and diversity transmitter. As with the Ylitalo and Dabak references, there is no disclosure, teaching or suggestion in the Akiba reference that a first channelization code that spreads a data field is ***uniquely*** associated with a first antenna and a second channelization code that spreads a data field is ***uniquely*** associated with a second antenna, as is recited in the Applicant's independent claims 1 and 5.

Accordingly, the Akiba reference fails to cure the deficiencies of the Ylitalo and Dabak references, and the Applicant's independent claims 1 and 5 are patentable over

the Ylitalo, Dabak and Akiba references, whether taken alone or in any combination with one another.

Since Applicant's claims 2-4 depend from Applicant's patentable independent claim 1, they are therefore patentable for at least the same reasons as Applicant's patentable independent claim 1.

Furthermore, claim 2 recites scrambling the first and second spread data fields by a scrambling code associated with the transmitter, which is not disclosed, taught or suggested by the Ylitalo, Dabak or Akiba references taken alone or in any combination with one another. Therefore, claim 2 is patentable for this reason as well as its dependence from patentable independent claim 1.

Likewise, since Applicant's claims 6-8 depend from Applicant's patentable independent claim 5, they are therefore patentable for at least the same reasons as Applicant's patentable independent claim 5.

Furthermore, claim 6 recites scrambling the first and second spread data fields by a scrambling code associated with the transmitter, which is not disclosed, taught or suggested by the Ylitalo, Dabak or Akiba references taken alone or in any combination with one another. Therefore, claim 6 is patentable for this reason as well as its dependence from patentable independent claim 5.

Claims 13 and 15 Meet the Requirements of 35 U.S.C. §102(e) as being patentable over Dabak et al. (U.S. Ref. No. 6,594,473).

The Dabak reference discloses spreading data on more than one antenna using the ***same*** walsh code. Referring to Figure 4 of Dabak, Walsh code one (W_1) is used to spread the data transmitted on both antenna one ***and*** antenna two. Walsh code two (W_2) is used to spread the data transmitted on both antenna three ***and*** antenna four. There is no disclosure, teaching, or suggestion that any different channelization code is used on the symbols in the Dabak reference. Furthermore, there is no disclosure, teaching, or suggestion in the Dabak reference of any channelization code being uniquely associated with a particular antenna.

Accordingly, the Applicant's independent claims 13 and 15 are patentable over the Dabak reference.

Claims 14 and 16 Meet the Requirements of 35 U.S.C. §103(a) as being patentable over Dabak et al. (U.S. Patent No. 6,594,473), in view of Akiba et al. (U.S. Patent No. 6,721,300).

The Akiba reference fails to cure the deficiencies of the of the Dabak reference in relation to the Applicant's independent claims 13 and 15. Accordingly, the Applicant's independent claims 13 and 15 are patentable over the Dabak and Akiba references, whether taken alone or in combination with one another.

Since claim 14 depends from the Applicant's patentable independent claim 13, it is therefore patentable for at least the same reasons as patentable independent claim 13.

Furthermore, claim 14 recites scrambling said first and second spread data fields by a scrambling code associated with the transmitter which is not disclosed, taught or suggested by the Dabak or Akiba references taken alone or in combination with one another. Therefore, claim 14 is patentable for this reason as well as its dependence from patentable independent claim 13.

Similarly, since claim 16 depends from the Applicant's patentable independent claim 15, it is therefore patentable for at least the same reasons as patentable independent claim 15.

Furthermore, claim 16 recites scrambling said first and second spread data fields by a scrambling code associated with the transmitter which is not disclosed, taught or suggested by the Dabak or Akiba references taken alone or in combination with one another. Therefore, claim 16 is patentable for this reason as well as its dependence from patentable independent claim 15.

(8) CONCLUSION

For the reasons stated above, pending claims 5-8 meet the requirements of 35 U.S.C. §112, second paragraph. Pending claims 1 and 5 meets the requirements of 35 U.S.C. §103(a) as patentable over the Ylitalo et al. (U.S. Ref. No. 6,788,661) in view of Dabak et al. (U.S. Patent No. 6,775,260 B1) references. Pending claims 2-4 and 6-8 meet the requirements of 35 U.S.C. §103(a) as patentable over the Ylitalo et al., Dabak et al., and Akiba et al. (U.S. Patent No. 6,721,300) references, whether taken alone or in any combination with one another. Claims 13 and 15 meet the requirements of 35 U.S.C. §102(e) as being patentable over Dabak et al. (U.S. Ref. No. 6,594,473). Claims 14 and 16 meet the requirements of 35 U.S.C. §103(a) as being patentable over Dabak et al. (U.S. Patent No. 6,594,473), in view of Akiba et al. Accordingly, the final rejection of the claims under 35 U.S.C. §112, 35 U.S.C. §102(e) and 35 U.S.C. §103(a) should be reversed.

Respectfully submitted,

Kim et al.

By: _____
Thomas A. Mattioli
Registration No. 56,773
(215) 568-6400

Volpe and Koenig, P.C.
United Plaza, Suite 1600
30 South 17th Street
Philadelphia, PA 19103

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(9) CLAIMS APPENDIX

(PENDING CLAIMS OF U.S. PATENT APPLICATION NO. 10/079,107)

1. A method for transmitting a data field of symbols comprising the steps of:

generating a first data field of symbols;

encoding said first data field producing a second data field having complex conjugates of the symbols of said first data field;

spreading said first and second data fields, wherein said first data field is spread using a first channelization code that is uniquely associated with a first antenna and said second data field is spread using a second channelization code that is uniquely associated with a second antenna; and

transmitting an RF signal including said first and second spread data fields over the first and second antennas.

2. The method of claim 1 further comprising the step of scrambling said first and second spread data fields by a scrambling code associated with said base station.

3. The method of claim 2 wherein the symbols of said first data field of symbols are grouped into a first and second sub-data field.

4. The method of claim 3, wherein the symbols of said second data field of symbols are grouped into a third and fourth sub-data field, wherein said third sub-data field is the negative complex conjugate of said second sub-data field and said fourth sub-data field is the complex conjugate of said first sub-data field.

5. A transmitter for transmitting a data field of symbols comprising:

a first and second antenna for transmitting said data field of symbols, wherein said data field includes a first data field;

an encoder for encoding said data field producing a second data field having complex conjugates of the symbols of said data field; and

a first channelization device for receiving the data field including the first data field and spreading said first data field, wherein said first channelization device spreads said first data field using a first channelization code that is uniquely associated with the first antenna; and

a second channelization device for receiving the second data field from the encoder and spreading said second data field using a second channelization code, the second channelization code being uniquely associated with the second antenna.

6. The transmitter of claim 5 wherein said transmitter further comprising a first and second scrambling device for scrambling said first and second spread data fields by a single scrambling code associated with said transmitter.

7. The transmitter of claim 6 wherein the symbols of said first data field of symbols are grouped into a first and second sub-data field.

8. The transmitter of claim 7, wherein the symbols of said second data field of symbols are grouped into a third and fourth sub-data field, said third sub-data field being the negative complex conjugate of said second sub-data field and said fourth sub-data field being the complex conjugate of said first sub-data field.

9-12. (Canceled).

13. A method for transmitting a data field of symbols comprising the steps of:

generating a data field of symbols, wherein said data field includes a first data field;

spreading said first data field using a first channelization code producing a first spread data field, wherein the first channelization code is uniquely associated with a first antenna;

spreading said first data field using a second channelization code producing a second spread data field, wherein the second channelization code is uniquely associated with a second antenna; and

transmitting an RF signal including said first and second spread data fields over the first and second antennas.

14. The method of claim 13 further comprising the steps of scrambling said first and second spread data fields by a scrambling code associated with said transmitter.

15. A transmitter for transmitting a data field of symbols comprising:

a first and second antenna for transmitting said data field of symbols; and

a first channelization device for spreading said data field, wherein said first channelization device spreads said data field using a first channelization code that is uniquely associated with the first antenna, producing a first spread data field; and

a second channelization device for spreading said data field using a second channelization code that is uniquely associated with the second antenna, producing a second spread data field.

16. The transmitter of claim 15 further comprising a first and second scrambling device for scrambling said first and second spread data fields by a single scrambling code associated with said transmitter.

17-18. (Canceled).

(10) EVIDENCE APPENDIX

None.

(11) RELATED PROCEEDINGS APPENDIX

None.